

Developing Map Skills and Understanding

1. What does it mean?

How confident are you about your reading and use of a variety of maps? Do you use a road atlas readily, or an Ordnance Survey (OS) map when you go walking? Can you follow a plan around a shopping mall or a nature reserve easily, or do you not bother? Are you highly map literate? Or do you lack confidence in using maps and generally avoid doing so?

Geography in the national curriculum involves teaching children about globes, plans, OS maps and atlas maps. The purpose is to develop map reading and recording skills and to use atlases to find out where places are and about them. Children should develop their competence through *interpreting* and *communicating geographical information* using geographical skills, *including maps, globes, aerial photographs and Geographical Information systems (GIS)*. Maps are to be used in context rather than taught in isolation.

Key Stage 1

- Use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied at this key stage.
- Use simple compass directions (North, south, East and West) and locational language (e.g. near and far) to describe the location of features and routes on a map.
- Use aerial photographs and plan perspective to recognise landmarks and basic physical features; devise a simple map; use and construct basic symbols in a key.

Key Stage 2

- Identify the position and significance of latitude, longitude, Equator, northern hemisphere, Southern hemisphere, the Tropics of cancer and Capricorn, Arctic and Antarctic Circle, and time zones (including day and night);
- Use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied;
- Use the eight points of the compass, four-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world.

Further detail, implicit in the Geography requirements, about understanding, appreciating and reading globes, maps and atlases effectively is given [here](#).



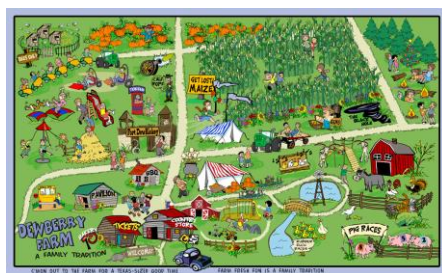
2. What does effective practice in primary schools look like?

Map skills are quite often taught in isolation rather than as part of a topic. This means that map skills are simply seen as a skill set, rather than as a means to understand or to record information about places and features. Their importance lies in being used in local studies to help investigations, where they may stimulate questions, show patterns when data is recorded or be a way to show key findings from a study of local or distant places or aspects of and

concerns about the physical or human environment. The outcomes and achievements of using maps in geographical studies very regularly are that children exhibit good map work understanding and skills. This occurs when children:

- use aerial photographs and a range of maps in school grounds and local studies, integrally to their observations, investigations, recording and analysis of information, and to identify and discuss feature and event sites, distributions and patterns;
- encounter maps through stories which they use to understand the story's events;
- build familiarity with British Isles, continental and world maps and the globe through reference to them regularly to locate places, features and events, noting frequent mentions, distributions and patterns;
- develop their range of skills in reading and interpreting maps in the field and in class with secondary sources, such as using co-ordinates, measuring distances and describing what particular symbols show individually and collectively about places;
- use maps to present, follow and plan routes for journeys and to describe places;
- create maps in various media using symbols, grids, compass directions and scale to show a place or environment, as a record, for planning or about an issue;
- have access to and use a wide variety of up-to-date maps at different scales and in different media, including maps on the web and in other IT sources;

It is important that children's learning is developed progressively as they use of maps and atlases. It is very useful that this has links with the development of mathematical learning particularly in space, such as in shapes and grids, and in linear and scale measurements.



3. How do we develop effective practice?

The key principle for teaching younger children to understand, use and make maps is that their map learning should occur in the wider context of geographical and other studies. Maps should be a resource in each geography topic and most geography lessons. You may well use maps in history topics and in other subjects too.

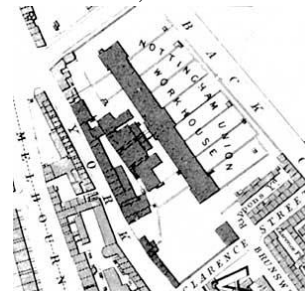
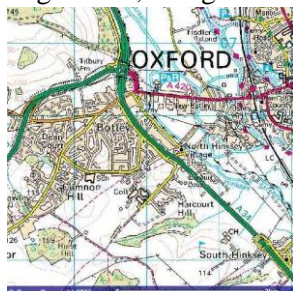
To feel confident teaching map skills it is important that you consider your own experience and use of maps, how comfortable you are using maps, how you think maps are and can be used, what you understand maps show, and what you know about the range of maps available. You, and some of your children, may have more experience using maps digitally than on paper. Have you drawn sketch maps to show friends the location of or route to somewhere?

Learning about maps and map work should be active, practical and involve regular map use.

- Introduce children to maps through floor play maps, the layout of other play roads and buildings. Use maps in a wide variety of learning contexts, in play, games, problem solving, planning, investigating issues, identifying or creating solutions, historical reconstruction, modelling places, practical challenges, treasure hunts, emotional trails, place perceptions, imagination and stories.
- Use Google Earth (see resources) to bring up an aerial photograph of your local area. Enlarge it so that features can be seen clearly. Discuss what can be seen. Look at the shapes of the features. Where are you looking from? What do you think your home

building looks like? Can you draw its shape? Look at some features in the playground. Try to draw how they look from above.

- Either draw a plan of the classroom and school playground/grounds or find an architect's plan of the school (and erase the bits you do not want shown, like text). Use it *in situ* to work out what is shown and how features and the shapes of the room or playground area are shown looking down. Add in features, such as room furniture or permanent playground equipment, drawing them from above. Use the plan/map to mark out different areas of use in the room/playground. Discuss how to represent these and the need for a key for colours/symbols.
- Use the plan/map to follow route instructions or mark out routes. Introduce and use spatial language for directions (left/right, next to/beside, far away/distant, forward/back, turn, etc). Use a compass to follow cardinal directions, starting with the basic north-south/east-west directions, then move to 8 compass points. Direct each other around a route, perhaps marked on a map. Talk about the compass directions of local features from the school.
- In local studies use large scale OS maps (1:2500) and hand-drawn maps to show the area. Discuss what is shown and how. Follow routes on local maps when undertaking fieldwork; relate the map to the street or area you are in several times. Use maps to record information and to show findings. Use other local maps, such as a street map or a tourist map of your area (if there is one): what do they show? Why those features and not others? Who uses them and how are they useful? How do they compare with an OS map or a hand-drawn map?
- Read picture story books and novels which are set in places and may or may not have a map included. Encourage the children to draw maps of the story or from the illustrations. How might their map compare with the author's/illustrator's map and with each other's?
- Always have a globe and atlas alongside it in the classroom, readily accessible. Encourage their use when places are mentioned. You may need to use a map via Google to find a place if it is not on the globe or in the atlas. Always relate it the globe and atlas to see (roughly) where it is in the British isles or the world.
- When studying other places, whether a locality, a UK region, another country or about physical and human geography, use an atlas to see where these places are. Discuss how they are shown on the atlas map; link this to the 'scale' of the map. Why are colours and shading used on maps? How do the symbols used tell you about the features of that part of the BI or the world? Find satellite images of these places, using Google; see how they look on Google Earth. How close in can you look? What detail do you see the larger the scale becomes?
- Have a variety of maps available for any study. Involve the children in selecting appropriate maps and images for to help their investigations. How are these useful or unhelpful? What else do they need? Where can they look for such maps?
- maps to investigate locations, distributions, patterns, actual and potential sites, proximities and distances, and representations;
- At times focus in a topic on specific aspects of map skills to understand how these work and are useful. Have children create their own symbols, keys, grids, and alignments, alongside using conventions, such as OS and atlas symbols and scales.



4. Which resources may be most helpful?

Additional sources to those listed below are given [here](#).

A wide variety of maps

Children should be introduced to and use a wide range of maps, including:

Large scale plans of rooms and the school grounds, picture maps (of real and imaginary places), street maps of their area, Ordnance Survey large 1:2500, 1:25000 and 1:50000 scale maps, road atlas, atlases, postcard maps, museum and heritage site maps, maps made in earlier times, world and British Isles wall maps, maps in tourist brochure, newspaper maps, digital maps, maps in TV news programmes, and so forth.

They should also have access to directional compasses and measuring equipment, such as trundle wheels and tape measures when making plans and maps of the school grounds.

Sources for further reading

Bridge, C (2010) Mapwork skills, in Scoffham, S (ed) *Primary Geography Handbook*, Sheffield: Geographical Association.

Sobel, D (1998) *Mapmaking with Children*, Portsmouth: Heineman

Wiegand, P (2006) *Learning and Teaching with Maps*, London: Routledge

Key journal which your school can obtain by joining the [Geographical Association](#).

See the Association's journal *Primary Geography* (*Primary Geographer* until 2010).

Barlow, A, Potts, R and Whittle, J (2010) Messy maps and messy spaces, *Primary Geographer*, 73, 14-15

Chave, c (2011) Mapping the British Isles with heart and head, *Primary Geography*, 75, 14-15

Collis, S (2011) Glocal mapping: looking at where I live with fresh eyes, *Primary Geography*, 75, 10-11

North, W (2008) Emoting with maps, *Primary Geographer*, 67, 13-15

Owen, D (2009) Digital natives, *Primary Geographer*, 67, 11-12

Potts, R (2011) Varmints! Storyboards and story maps, *Primary Geography*, 75, 9

Web sources

There are many web sites to use to find maps.

Bing Maps www.bing.com/maps

Encarta World Atlas en.softonic.com/download-encarta-world-atlas-2012

ESRI (GIS focused) www.esri.com

Geocaching www.geocaching.com

Google Earth/Google maps www.google.com/earth, and www.maps.google.co.uk

National Geographic map machine

http://education.nationalgeographic.com/education/mapping/interactive-map/?ar_a=1

OS Digimaps for schools www.digimapsforschools.edina.ac.uk/cosmo/home

OS Mapzone www.mapzone.ordnancesurvey.co.uk/mapzone

Oxfam Mapping Our World www.oxfam.org.uk/coolplanet/mappingourworld

Quikmaps www.quikmaps.com

Worldmapper www.worldmapper.org

Zeemapper www.zeemaps.com

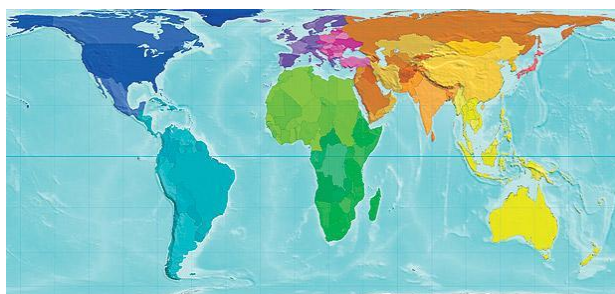
To look at many different types of maps, search on Google and use the *images* and *maps* tabs above the lists of websites. Other websites are given [here](#).

APPENDIX 1 – possible hyperlink addition

What we need to understand to read and interpret maps effectively

To read and use maps effectively, primary children need to begin to understand and develop their skills in reading and interpreting maps because they build up a range of understandings relevant to globes and large and small scale maps. These include:

- knowing the Earth is a spheroid, through using globes, and recognising images of the Earth from space, recognising the positions and pattern of the continents and oceans;
- identifying the variety of features on vertical/oblique aerial photographs at different scales, and beginning to understand why larger scale aerial photographs are easier to read than smaller scale photographs;
- understanding that a globe is an ‘Earth model’ and that world maps are representations of the globe/world and some of the features on it, though these are very generalised and shown by symbols, as well as beginning to become aware of different projections, such as equal area projections and the familiar Mercator projection;
- appreciating and using a variety of maps at different scales and of different types, including room and building plans, Ordnance survey maps, atlas and wall maps and street maps, and sketch maps, picture maps and route maps;
- seeing and using maps on digital devices: eg on computers and mobile phones;
- understanding everyday spatial and feature vocabulary, such as left/right, forward/back, next to/far from, over there/by me and so forth; and being introduced to key map terms specific to maps they may use in studies in physical and human geography, such as topographic, political and physical maps;
- developing experiencing in using and understanding the elements of maps to read, interpret and make use of them:
 - Plan perspective and plan layouts
 - Keys and symbols: point, line, area, colour/shading, letters/numbers
 - Scale and scale bars
 - Compass directions (eight and sixteen) and a compass rose/sign
 - Grid overlays, to give/read grid references, alpha-numeric and 4 and 6 figure
 - For atlases: the nature and role of latitude and longitude, including the Equator, Tropics of Cancer/Capricorn, Arctic/Antarctic Circles, Greenwich Meridian
 - That map content is selected: features may be exaggerated/excluded
 - The map’s title,
 - An atlas Contents list and the Index;
- drawing maps of familiar routes/areas and key places visited;
- using plans and maps on fieldwork to relate to the environment they are in and record what they notice and find out;
- using large scale and small scale maps to record and present information.



APPENDIX 2 – possible hyperlink addition

Further resources for ideas for teaching map understanding

Further reading about teaching map skills

There are a variety of recent books and chapters on teaching map understanding aimed at teachers, including:

- Catling, S and Willy, T (2009) *Teaching Primary Geography*, Exeter: Learning Matters
- Mackintosh, M (2013) Representing places in maps and art, in Scoffham (ed) *Teaching Geography Creatively*, London Routledge
- Roan, M and Taylor M (2012) *The Little Book of Maps and Plans*, London: A & C Black

Developing adult's map understanding for teaching:

- Catling, S (2006) *GTIP Think Piece – Making and Using Maps*
www.geography.org.uk/gtip/thinkpieces/makingmaps
- Wiegand, P (2006) *GTIP Think Piece – Using Maps and Atlases*
www.geography.org.uk/gtip/thinkpieces/usingmapsatlases
- GA (2005) *Valuing Places – Think Maps*
www.geography.org.uk/projects/valuingplaces/cpdunits/thinkmaps

The Geographical Association's journal *Primary Geography* (*Primary Geographer* to 2010) is a rich source of articles relevant to children learning about maps and using mapwork, with many teaching ideas and approaches. Articles include:

- Catling, S and Baker, P (2011) Wish you were here? Exploring postcard maps, *Primary Geography*, 75, 12-13
- Clarke, J and Edwards, M (2010) Map sandwiches: creating digital maps from layers, *Primary Geographer*, 72, 24-25
- Mackintosh, M (2011) Graphicacy for life, *Primary Geography*, 75, 6-7
- Mycok, D, Norman, W and Pickering, S (2012) Blind futsal: The beautiful, geographical game, *Primary Geography*, 77, 20-21
- Pritchard, J (2008) Worldmapper, *Primary Geographer*, 30-33
- Schmeink, D (2007) Making a case for maps, *Primary Geographer*, 63, 36-38
- Webster, C (2007) Projections and perceptions, *Primary Geographer*, 64, 24-25

Web-based sources for teaching approaches include:

- BBC (n.d.) *Landscapes: Map Skills*
www.bbc.co.uk/scotland/education/sym/landscapes/highlands_islands/mapskills/index_intro.shtml
- Warner, M (n.d.) *Teaching Ideas: Map Drawing Skills*
www.teachingideas.co.uk/geography/map.htm
- Ness (n.d.) *First Map Skills*
www.oneperfectdayblog.net/2013/04/23/map-reading-for-kids/
- Dr Donn (n.d.) *Mapskills* www.http://geography.mrdonn.org/mapskills.html
- Get out with the kids (n.d.) *Teaching Kids Map Reading Skills*
www.getoutwiththekids.co.uk/family-hiking/teaching-kids-map-reading/
- Proteacher (n.d.) *Map Skills* www.proteacher.com/090030.shtml

Understanding maps and GIS

There are many books on maps, cartography and GIS, if you want to find out and understand more about them, including:

- Davis, D (2003) *GIS for Everyone*, Redlands, CA: ESRI
- deMers, M (2009) *GIS for Dummies*, Hoboken: Wiley

National Research Council (2006) *Learning to Think Spatially*, Washington: National Academies Press

Walbert, D (n.d.) *Map Skills and Higher Order Thinking*,
www.learnnc.org/editions/mapping/6439

Wood, D, Kaiser, W and Abramms, B (2006) *Seeing through Maps*, Oxford: New Internationalist Publications

Introducing maps to children

There are class and library books for primary age children which provide insights into maps and mapping, such as:

Catling, S (2010) *Mapstart 1, Mapstart 2*, London: Collins

Fanelli, S (1995) *My Map Book*, London: ABC

Jenkins, S (1995) *Looking Down*, New York: Houghton Mifflin

Singer, M (1991) *Nine O'Clock Lullaby*, London: HarperCollins

Atlas publishers

Three main publishers in the UK provide atlases for key stages 1 and 2:

Collins www.collins.com/primary/geography

Oxford university Press www.oup.com/oxed/primary/geography

Philips www.octopusbooks.co.uk/philips-maps

Pearson publish two Barnaby Bear atlases for key stage 1 use, which are also available via the Geographical Association webshop.

Pearson www.pearsonschoolsandcolleges.co.uk/primary/search

A variety of map websites for teaching and learning

There are many sources on the web which support teaching and learning about maps, as well as which provide maps for use, including interactive maps. These sites need to be checked for their appropriateness/relevance for maps and map teaching ideas you want to use.

Atlapedia www.atlapedia.com

Cassini maps www.cassinimaps.co.uk

Getmapping www2.getmapping.com

Mapquest www.mapquest.com

Multimap www.multi-map.net

National Geographic map machine

http://education.nationalgeographic.com/education/mapping/interactive-map/?ar_a=1

Nearmap www.nearmap.com

Old OS maps www.old-maps.co.uk/index.html

Ordnance Survey mapping www.ordnancesurvey.co.uk/oswebsite/education-and-research/teaching-resources/index.html

OS getamap

www.magaizine.ordnancesurvey.co.uk/magazine/tscontent/editorials/getamap/index.html

Oxfam Mapping Our World www.oxfam.org.uk/coolplanet/mappingourworld

Road and street maps www.here.com

SparkleBox Map teaching resources www.sparkelbox.co.uk/world-around-us/environment/maps.html#UYO_0cqdgUk